Bahamas Cycad Exploration Begins

Over the past few years, I have conducted cycad fieldwork for MBC in Puerto Rico, Jamaica, and the Dominican Republic. These trips are contributing to an extensive project coordinated by Dr. Alan Meerow of the USDA, which seeks to study the evolution and origin of Caribbean *Zamia*. The project team also includes Dr. Javier Francisco-Ortega (FIU/FTBG), Dr. Dennis Stevenson (New York Botanical Garden), and botanists from the Greater Antilles (see Montgomery Botanical News, Fall 2008, Fall 2009). Together, we aim to conduct fieldwork in the seven countries where Caribbean *Zamia* occur.

Zamia and Seagrape

Thanks to Javier, the team received support from the Mohammed Bin Zayed Species Conservation Fund to study *Zamia* in The Bahamas on six separate islands. Carried out in partnership with The Bahamas National Trust (BNT), this work will focus primarily on *Zamia lucayana*, an endangered species endemic to Long Island. As part of the research, the conservation status of *Zamia lucayana* will be evaluated by locating and mapping wild populations and analyzing current and future threats to its survival. Genetic data will help determine relationships and conservation priorities. The combination of field and molecular data will be used to prepare a conservation action plan for this species. An outreach component aims to increase awareness for cycad conservation in the Bahamian archipelago.

Hermit crab feeding on the ripe red seed sarcotesta

Dr. Javier Francisco-Ortega and Michael Calonje with *Zamia lucayana*

Fieldwork

In December of 2009, Javier, Lindy Knowles (BNT), and I began the Bahamian fieldwork by traveling to Long Island to study populations of *Zamia lucayana*. On a ten day survey studying *Zamia lucayana* populations, we found that it occurs only on a narrow strip of coastal sand dunes. This habitat is less than 200 feet wide, and only about 4 miles long.

Although severely limited in distribution, this species was locally abundant at some locations, forming dense stands in beach sand right along the coast with sea lily (*Hymenocallis arenicola*) and sea grape (*Coccoloba uvifera*). The plants seemed remarkably adapted to this harsh coastal environment, looking equally healthy while growing under sea grape or in full sun, and apparently unbothered by the salt spray that was clearly visible on its leaves. The seeds of *Zamia lucayana* seemed to be an important food source for hermit crabs, as dozens of them were observed feeding on the ripe red seed sarcotesta. While the seeds appeared too large for hermit crabs to aid in long-distance dispersal, the removal of the sarcotesta most likely helped the seeds germinate more readily.

Conservation Needs

The pristine white sand and turquoise blue Caribbean waters made this one of the most beautiful cycad habitats we had ever encountered. The stunning scenery also means that the habitat is in danger of future residential or tourism development. Additional visits to Long Island and other Bahamian islands in 2010 will aid in the conservation of native *Zamia* species by adding to our knowledge, increasing local conservation awareness, providing recommendations to environmental decision makers in The Bahamas, and making seed available to *ex situ* conservation collections.

Michael Calonje, M.S., Cycad Biologist
michaelc@montgomerybotanical.org